**Designing Circuits Activity**

**Purpose:** To compare the brightness of each light in series and parallel circuits.

**Part A: Simple Circuit – One Bulb, One Switch**

1. Build the following circuit:



1. Close the switch. Record your observations in Table 1 below.

**Part B: Series Circuit – Two Bulbs, One Switch**

1. Build the following circuit:



1. Close the switch. Compare the brightness of each bulb in this circuit to the first circuit. Record your observations in Table 1 below.
2. Unscrew one bulb. Observe what happens to the other light. Record your observations in Table 1 below.

**Part C: Parallel Circuit – Two Bulbs, One Switch**

1. Build the following circuit:



1. Close the switch. Compare the brightness of each bulb in this circuit to the brightness of the bulbs in the first circuit. Record your observations in Table 1 below.
2. Unscrew one bulb. Observe what happens to the other light. Record your observations in Table 1 below.

**Table 1: Observations of 3 Different Circuits**

|  |  |  |  |
| --- | --- | --- | --- |
| **Circuit** | **Bulb 1 Brightness** | **Bulb 2 On/Off** | **Brightness** |
| 1 |  | ----- | ----- |
| 2 |  | On |  |
| 2 |  | Off |  |
| 3 |  | On |  |
| 3 |  | Off |  |

**Analysis Questions:**

1. How does the brightness of the light compare in each of the circuits?
2. What happened when you unscrewed a bulb in circuits 2 and 3?
3. Based on the brightness of the lights, which light(s) do you think used more energy?
4. Which type of circuit would you used to wire the lights in your home? Why?
5. Why do you think most home have a switch wired in series with all of the circuits in the house?